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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,375	06/27/2003	Curtis L. Taylor	3053-72435	8001

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EXAMINER	
RINEHART, KENNETH	

ART UNIT	PAPER NUMBER
3749	

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/608,375	TAYLOR, CURTIS L.
	Examiner	Art Unit
	Kenneth B Rinehart	3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *22 and 23* is/are allowed.

6)☒ Claim(s) *1,3,13-15 and 20* is/are rejected.

7)☒ Claim(s) *2,4-12,16-19 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/27/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 6/27/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. A copy of 2003/0009932 could not be located.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Staudinger . Staudinger shows a fuel supply system including a solid-fuel conduit formed to include a fuel transport passageway (1, fig. 1), the solid-fuel conduit including a side wall formed to include oxygen-injection holes opening into the fuel transport passageway (8', fig. 1), and first oxygen conductor means for conducting a first stream of oxygen through the oxygen-injection holes formed in the side wall of the solid-fuel conduit to mix with fluidized, pulverized, solid fuel conducted through the fuel transport passageway prior to combustion to produce an oxygen-enriched, not spontaneously combustible, oxygen-fuel transport mixture (9, fig. 1), the first oxygen conductor means includes a first oxygen-supply housing formed to include first and second

openings (left side of 9, to end of 8, fig. 1), an oxygen chamber adapted to receive a supply of oxygen (9, fig. 1), and an oxygen inlet adapted to admit oxygen into the oxygen chamber (10, fig. 1), and the solid-fuel conduit extends through the first and second openings to place the oxygen-injection holes in the oxygen chamber to allow oxygen extant in the oxygen chamber to flow through the oxygen-injection holes into the fuel transport passageway formed in the solid-fuel conduit (fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Staudinger. Staudinger discloses a fuel supply system including a solid-fuel conduit formed to include a fuel transport passageway (1, fig. 1), the solid-fuel conduit including a side wall formed to include oxygen-injection holes opening into the fuel transport passageway (8', fig. 1), and first oxygen conductor means for conducting a first stream of oxygen through the oxygen-injection holes formed in the side wall of the solid-fuel conduit to mix with fluidized, pulverized, solid fuel conducted through the fuel transport passageway prior to combustion to produce an oxygen-enriched, not spontaneously combustible, oxygen-fuel transport mixture (9, fig. 1), the first oxygen conductor means includes a first oxygen-supply housing formed to include first and second openings (left side of 9, to end of 8, fig. 1), an oxygen chamber adapted to receive a supply of oxygen (9, fig.

1), and an oxygen inlet adapted to admit oxygen into the oxygen chamber (10, fig. 1), and the solid-fuel conduit extends through the first and second openings to place the oxygen-injection holes in the oxygen chamber to allow oxygen extant in the oxygen chamber to flow through the oxygen-injection holes into the fuel transport passageway formed in the solid-fuel conduit (fig. 1). Staudinger discloses applicant's invention substantially as claimed with the exception of the first oxygen supply housing includes a cylinder-shaped side wall formed to include the oxygen inlet, a first end wall coupled to one end of the cylinder-shaped side wall and formed to include the first opening, and a second end wall coupled to another end of the cylinder shaped side wall and formed to include the second opening, and wherein the cylinder-shaped side wall, the first and second end walls, and a portion of the solid fuel conduit cooperate to define the oxygen chamber therebetween. At the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to have a cylinder shaped chamber because applicant ahs not disclosed that the shape of the chamber provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the chamber of Staudinger or the claimed chambers because both chambers perform the same function of supplying oxygen equally well.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Staudinger in view of Taylor and Sayler et al. Staudinger discloses a fuel supply system including a solid-fuel conduit formed to include a fuel transport passageway (1, fig. 1), the solid-fuel conduit including a side wall formed to include oxygen-injection holes opening into the fuel transport passageway (8', fig. 1), and first oxygen conductor means for conducting a first stream of oxygen through the

oxygen-injection holes formed in the side wall of the solid-fuel conduit to mix with fluidized, pulverized, solid fuel conducted through the fuel transport passageway prior to combustion to produce an oxygen-enriched, not spontaneously combustible, oxygen-fuel transport mixture (9, fig. 1), the first oxygen conductor means includes a first oxygen-supply housing formed to include first and second openings (left side of 9, to end of 8, fig. 1), an oxygen chamber adapted to receive a supply of oxygen (9, fig. 1), and an oxygen inlet adapted to admit oxygen into the oxygen chamber (10, fig. 1), and the solid-fuel conduit extends through the first and second openings to place the oxygen-injection holes in the oxygen chamber to allow oxygen extant in the oxygen chamber to flow through the oxygen-injection holes into the fuel transport passageway formed in the solid-fuel conduit (fig. 1), a refractory shape formed to include a flame chamber receiving the oxygen-fuel mixture produced in the fuel transport passageway and having an inlet opening and an outlet opening (4, fig. 1), and second oxygen conductor means for oonducting a second stream of oxygen to the inlet opening of the flame chamber ... to enrich the concentration of oxygen in the oxygen-enriched, yet not spontaneously combustible, oxygen-fuel transport mixture in the flame chamber to produce an oxygen-fuel mixture in the flame chamber (14, fig. 1), , an oxygen supply, and distribution means for varying an amount of primary oxygen supplied by the oxygen supply to the first oxygen conductor means (Oxygen, 11, fig. 1) and secondary oxygen supplied by the oxygen supply to the second oxygen conductor means (16, fig. 1) to regulate the relative concentration of oxygen in the oxygen-enriched, yet not spontaneously combustible, oxygen-fuel transport mixture established in the fuel transport passageway and the oxygen-fuel mixture extant in the flame chamber so that a selected ratio of primary and secondary oxygen is achieved to

optimize emissions generated by burning the oxygen-fuel mixture extant in the flame chamber and adjust for variations in physical properties of pulverized solid fuel discharged into the stream of fluidizing gas (col. 3, lines 39-48). Staudinger discloses applicant's invention substantially as claimed with the exception of a staged-oxygen bypass conduit arranged to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, and to the staged-oxygen bypass conduit, means for conducting a stream of fluidizing gas into the fuel transport passageway, means for discharging a pulverized solid fuel into the stream of fluidizing gas to produce a fluidized, pulverized, solid fuel flowing through the fuel transport passageway. Taylor teaches a staged-oxygen bypass conduit arranged to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, and to the staged-oxygen bypass conduit (118, 94, 126, fig. 1) for the purpose of providing additional oxygen to complete combustion. It would have been obvious to one of ordinary skill in the art to modify Staudinger by including a staged-oxygen bypass conduit arranged to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, and to the staged-oxygen bypass conduit as taught by Taylor for the purpose of providing additional oxygen to complete combustion and optimize flame shape and length. Staudinger in view of Taylor discloses discloses applicant's invention substantially as claimed with the exception of means for discharging a pulverized solid fuel into the stream of fluidizing gas to produce a fluidized, pulverized, solid fuel flowing through the fuel transport passageway. Sayler et al teaches means for discharging a pulverized solid fuel into the stream of fluidizing gas to produce a fluidized, pulverized, solid fuel flowing through the fuel transport passageway (12, 13, fig.3) for the purpose of supplying the solid fuel. It would have been obvious to one of ordinary skill in the art to modify Saudinger et al by including means for

discharging a pulverized solid fuel into the stream of fluidizing gas to produce a fluidized, pulverized, solid fuel flowing through the fuel transport passageway as taught by Sayler et al for the purpose of supplying the solid fuel so that the apparatus can operate.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staudinger in view Sayler et al. Staudinger discloses a fuel supply tube formed to include an inlet, an outlet, and a passageway extending therethrough from the inlet to the outlet (11, fig. 1), an oxygen supply housing coupled to an upstream portion of the fuel supply tube to define an upstream oxygen chamber there between (9, fig. 1) and formed to include an oxygen inlet adapted to admit oxygen into the upstream oxygen chamber (10, fig. 1), the upstream portion of the fuel supply tube being formed to include an upstream set of oxygen-injection holes opening into the passageway located in the upstream portion of the fuel supply tube (8', fig. 1), an outer tube (14, fig. 1) coupled to a downstream portion of the fuel supply tube to define an oxygen flow passage there between (13, fig. 1) and formed to include an oxygen inlet adapted to admit oxygen into the oxygen flow passage (13, inherently has an inlet, fig. 1), the downstream portion of the fuel supply tube being formed to include a downstream set of oxygen-injection holes opening into the passageway located in the downstream portion of the fuel supply tube (13', fig.1), and an oxygen delivery system including first oxygen conductor means for conducting a first stream of oxygen through the upstream set of oxygen-injection holes to mix with fluidized, pulverized, solid fuel conducted through the passageway in the upstream portion of the fuel supply tube to produce an oxygen-enriched, yet not spontaneously combustible, oxygen-fuel transport mixture (oxygen, 11, 10, fig. 1, col. 3, lines 39-44) and second oxygen conductor means for conducting a second stream of oxygen

through the oxygen inlet formed in the outer tube and into the oxygen flow passage to pass through the downstream set of oxygen-injection holes to mix with the oxygen-enriched, yet not spontaneously combustible, oxygen-fuel transport mixture conducted through the passageway in the downstream portion of the fuel supply tube to produce an oxygen-fuel mixture exiting the passageway through the outlet of the fuel supply tube to be ignited outside the passageway to produce a flame (oxygen, 12, 16, 15, fig. 1, col. 3, lines 39-44), a refractory shape formed to include a flame chamber receiving the oxygen-fuel mixture exiting the passageway through the outlet of the fuel supply tube and the oxygen delivery system (4, fig. 1) further includes distribution means for varying an amount of oxygen supplied to the passageway located in the upstream portion of the fuel supply tube by the first oxygen conductor means and an amount of oxygen supplied to the passageway located in the downstream portion of the fuel supply tube by the second oxygen conductor means (11, 16, fig. 1). Staudinger discloses applicant's invention substantially as claimed with the exception of means for moving a stream of fluidized, pulverized, solid fuel fluidized using a fluidizing gas in a downstream direction into the passageway through the inlet and out of the passageway through the outlet. Sayler teaches means for moving a stream of fluidized, pulverized, solid fuel fluidized using a fluidizing gas in a downstream direction into the passageway through the inlet and out of the passageway through the outlet (12, 13, fig.3) for the purpose of supplying the solid fuel. It would have been obvious to one of ordinary skill in the art to modify Stuadinger et al by including means for moving a stream of fluidized, pulverized, solid fuel fluidized using a fluidizing gas in a downstream direction into the passageway through the inlet and out of the

passageway through the outlet as taught by Sayler for the purpose of supplying the solid fuel so that the apparatus can operate.

Allowable Subject Matter

Claims 22 and 23 are allowed.

Claims 2, 4-12, 16-19, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to burners in general: Moriarity (4517165), Legiret et al (6283747).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBR

KENNETH RINEHART
PRIMARY EXAMINER